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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,084	02/03/2006	Kazuhiro Yanagisawa	Q92943	2328

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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
SCOTT, ANGELA C	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
11/27/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM
USPTO@SUGHRUE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/595,084	YANAGISAWA ET AL.	
	Examiner	Art Unit	
	Angela C. Scott	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 5-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 5-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/9/2009 & 11/4/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's response of July 28, 2009 has been fully considered. Claims 1 and 13 are amended and claim 15 is canceled. Claims 1, 2, and 5-14 are pending.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 2, and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. (US 2003/0088006).

Regarding claim 1, Yanagisawa et al. teaches a method for producing a rubber master batch comprising the step of mixing a rubber latex (rubber solution) with a slurry of a filler dispersed into water (¶19).

Yanagisawa et al. does not teach that the mixing of the rubber solution and the slurry solution takes place in a high shear mixer comprising a rotor and a stator portion. However, Yanagisawa et al. does teach that the aqueous slurry of filler is prepared by using a high-shear mixer of rotor-stator type (¶36). At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a high-shear mixer of rotor-stator type to mix not only the slurry solution, as taught by Yanagisawa et al., but the rubber solution and the slurry solution together, and would have been motivated to do so because using a high-shear mixer will give the predictable result of dispersing one phase or ingredient (liquid, solid, gas) into a main continuous phase (liquid), with which it would normally be immiscible.

Yanagisawa et al. also does not teach using a shear speed of not less than 2000/s when mixing the latex and the filler solution. However, it is well known in the art to optimize result effective variables, such as the mixing speed (MPEP §2144.05). At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a mixing speed of not less than 2000/s in the process as taught by Yanagisawa et al. and would have been motivated to do so in order to ensure proper mixing of the two slurries.

Regarding claim 2, Yanagisawa et al. additionally teaches that the filler is selected from the group consisting of carbon black, silica, and an inorganic filler represented by the following formula:

$$nM_1 \cdot xSiO_y \cdot zH_2O$$

wherein M_1 is at least one member selected from the group consisting of metals of aluminum, magnesium, titanium, calcium or zirconium, oxides of the preceding metals, hydroxides of the preceding metals, hydrates of the preceding oxides and hydroxides, and carbonates of the preceding metals; n is an integer of 1 to 5, x is an integer of 0 to 10, y is an integer of 2 to 5, and z is an integer of 0 to 10 (¶¶13-14).

Regarding claim 5, Yanagisawa et al. additionally teaches that the amide linkages in the natural rubber latex are cleaved with a protease (¶¶19 and 21).

Regarding claim 6, Yanagisawa et al. additionally teaches when the natural rubber latex (rubber solution) is mixed with the slurry solution, the mixture is coagulated (¶42) and has a water content of preferably 10% or more (¶45) and then the mixture is dried by applying a mechanical shearing force (¶44).

Regarding claim 7, Yanagisawa et al. additionally teaches that the drying under shear force can be carried out by using a known kneader, preferably by a continuous kneader in view of industrial productivity. More preferably, a corotating or counterrotaing twin-screw kneading extruder is used (a screw-type continuous milling machine) (¶44).

Regarding claim 8, Yanagisawa et al. additionally teaches a natural rubber master batch obtained by the above methods (¶46).

Regarding claim 9, Yanagisawa et al. additionally teaches a natural rubber composition prepared by using the natural rubber master batch (¶47).

Regarding claims 10 and 11, Yanagisawa et al. additionally teaches that the rubber composition is applicable to tire applications as well as belts (¶115).

Regarding claim 12, Yanagisawa et al. additionally teaches that a flow of the slurry is mixed with a flow of the latex in order to create a hydraulic stirring (¶41). This would mean that they are substantially simultaneously charged.

Claims 2, 8-11 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yanagisawa et al. (US 2003/0088006) in view of Lopez-Serrano Ramos et al. (US 2002/0111413).

Regarding claim 13, Yanagisawa et al. teaches a method for producing a rubber master batch comprising the step of mixing a rubber latex (rubber solution) with a slurry of a filler dispersed into water (¶19). Yanagisawa et al. additionally teaches that a flow of the slurry is mixed with a flow of the latex in order to create a hydraulic stirring (¶41). This would mean that they are substantially simultaneously charged.

Yanagisawa et al. does not teach that the mixing of the rubber solution and the slurry solution takes place in a static mixer. However, Lopez-Serrano Ramos et al. teaches a rubber solution and a slurry solution being mixed with a static mixer (¶57). Yanagisawa et al. and Lopez-Serrano Ramos et al. are analogous art because they are from the same field of endeavor, namely that of process of making filled rubber compositions. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use a static mixer, as taught by Lopez-Serrano Ramos et al., to mix the rubber composition, as taught by Yanagisawa et al., and would have been motivated to do so because static mixers are standard mixers in the art and they are good for mixing together 2 liquids.

Regarding claim 2, Yanagisawa et al. additionally teaches that the filler is selected from the group consisting of carbon black, silica, and an inorganic filler represented by the following formula:

$$nM_1 \cdot xSiO_y \cdot zH_2O$$

wherein M_1 is at least one member selected from the group consisting of metals of aluminum, magnesium, titanium, calcium or zirconium, oxides of the preceding metals, hydroxides of the preceding metals, hydrates of the preceding oxides and hydroxides, and carbonates of the preceding metals; n is an integer of 1 to 5, x is an integer of 0 to 10, y is an integer of 2 to 5, and z is an integer of 0 to 10 (¶¶13-14).

Regarding claim 8, Yanagisawa et al. additionally teaches a natural rubber master batch obtained by the above methods (¶46).

Regarding claim 9, Yanagisawa et al. additionally teaches a natural rubber composition prepared by using the natural rubber master batch (¶47).

Regarding claims 10 and 11, Yanagisawa et al. additionally teaches that the rubber composition is applicable to tire applications as well as belts (¶115).

Regarding claim 14, Yanagisawa et al. additionally teaches that the rubber masterbatch is coagulated by using a coagulant (¶42).

Response to Arguments

Applicant's arguments filed July 28, 2009 have been fully considered but they are not persuasive.

Applicants argue that one of ordinary skill in the art would not expect the results obtained, i.e., improved homogeneity, by using a high-shear mixer or by using a static mixer while simultaneously charging the rubber solution and filler slurry to produce the rubber master batch. To support this argument, applicants have submitted a Rule 1.132 Declaration showing comparative experiments. The declaration states that the "rubber master batches of comparative examples 2 and 3 are poor in homogeneity because…the average amount of the filler compounded is far from a theoretical value, i.e., 50." (Page 3 of the declaration). However, when looking at the table on page 3 of the declaration, the average amount of filler compounded is 51.2 and 49.2 for comparative examples 2 and 3, respectively, while the amount for examples 1 and 2 is 50.3 and 49.6, respectively. These amounts are very close to one another and very close to the theoretical value of 50. Simply because one method may produce a better result does not make it unexpected. The results shown here are not unexpected as they are all clustered very closely around 50.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela C. Scott whose telephone number is (571) 270-3303. The examiner can normally be reached on Monday through Friday, 8:30am to 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/A. C. S./
Examiner, Art Unit 1796
November 17, 2009